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EXAMINER
LU, C CAIXIA

ARTUNIT	PAPER NUMBER
1713	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

### Application No.

10/579,361

### Examiner

Caixia Lu

### Applicant(s)

LAVASTRE ET AL.

### Art Unit

1713

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
  - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
  - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 13-30 is/are pending in the application.
- 4a) Of the above claim(s) 19-30 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 13-18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_

## DETAILED ACTION

### *Election/Restrictions*

1. Restriction is required under 35 U.S.C. 121 and 372.

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1.

In accordance with 37 CFR 1.499, applicant is required, in reply to this action, to elect a single invention to which the claims must be restricted.

Group I, claim(s) 13-18, drawn to a process of making catalyst component.

Group II, claim(s) 19, drawn to a catalyst component.

Group III, claim(s) 20-22, drawn to a catalyst composition.

Group IV, claim(s) 21-30, drawn to a polymerization process.

The inventions listed as Groups I-IV do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: the common technical feature of catalyst component among the four Groups comprises the same catalyst component as the prior art, e.g. Pinheiro et al. (Macromol. Rapid Commun., 22, 2001, pages 425-428). As the recited catalyst component does not make a contribution over the prior art, i.e. the special technical feature(s) is anticipated by or obvious in view of the prior art, unity of invention is lacking and restriction is appropriate.

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2. This application contains claims directed to more than one species of the generic invention. These species are deemed to lack unity of invention because they are not so linked as to form a single general inventive concept under PCT Rule 13.1.

The species are as follows:

(i) ionic liquid precursor of imidazole and

(ii) ionic liquid precursor of pyridine.

Applicant is required, in reply to this action, to elect a single species to which the claims shall be restricted if no generic claim is finally held to be allowable. The reply must also identify the claims readable on the elected species, including any claims subsequently added. An argument that a claim is allowable or that all claims are generic is considered non-responsive unless accompanied by an election.

Upon the allowance of a generic claim, applicant will be entitled to consideration of claims to additional species which are written in dependent form or otherwise include all the limitations of an allowed generic claim as provided by 37 CFR 1.141. If claims are added after the election, applicant must indicate which are readable upon the elected species. MPEP § 809.02(a).

3. The claims are deemed to correspond to the species listed above in the following manner:

species (i) reads on claim 14-16 and species (ii) reads on claims 14 and 16.

The following claim(s) are generic: claims 13 and 17-30.

4. The species listed above do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, the species lack the same or corresponding special technical features for the following reasons: Pursuant to PCT Rule 13.2 and PCT Administrative Instructions, Annex B, Part 1(f)(I)(B)(2), the species are not art recognized equivalents.

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5. During a telephone conversation with Attorney Diane Kilpatrick-Lee on July 9, 2007 a provisional election was made with traverse to prosecute the invention of Group I, claim 13-18. Affirmation of this election must be made by applicant in replying to this Office action. Claims 19-30 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

6. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

### ***Specification***

1. The abstract of the disclosure is objected to because of erroneous disclosure. The description of "reacting the [sic] halogenated bisimine precursor with an ionic liquid precursor in a solvent to prepare an ionic liquid" is inconsistent with the disclosure in the specification in that the ionic liquid is prepared by reacting halogenated precursor of Formula (I) with ionic liquid precursor such as pyridine and imidazole. Correction is required. See MPEP § 608.01(b).

2. The disclosure is objected to because of the following informalities:

(i) Throughout the specification, numerous words improperly contain an extra space, e.g., "eth ene" in line 14 of page 1 and "c atalyst" in line 25 of page 1, the list goes on.

Applicants are urged to check the whole specification and correct all of the typographic errors.

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(ii) Page 4, the use of terms "imidazolium" and "pyridinium" as the ionic liquid precursor in lines 4 and 11 respectively are erroneous, the ionic liquid precursor should be imidaole and pyridine respectively instead.

(iii) In line 18 of page 6, the term "obtainable" should be replaced with "obtained".

***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 13-18 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. There is no detail description regarding the structure of ligand L of Formula (II) in claim 13, one skilled in the art would not know what is the structure of L. It is noted that the metallic complexes disclosed in the working example in the specification does not meet the limitation of formula (II).

5. Claims 13-18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In Claim 13, The term "a hybrid single site catalyst component" lack antecedence in the claim.

***Claim Rejections - 35 USC § 103***

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7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 13-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over McGuinness et al. (Ogranometallics, 2002, 21, 175-181), Chauvin et al. (Ind. Eng. Chem. Res, 1995, 34, 1149-1155) and Chauvin et al. (Journal of Catalysis, 165, 273-287, 1997) independently in view of Solomons' (Organic Chemistry, 1996, page 953).

McGuinness teaches a catalyst composition prepared by contacting 1-buty-3-methylimidazoline chloride (the ionic liquid salt) with nickel-phosphine complex (page 1150). McGuinness' teaching anticipates steps c) to e). It is noted that McGuinness does not expressly teach the preparation of the ionic liquid salt. However, preparation of the ionic liquid salt by reacting imidazole or pyridine with an alkyl halide are routine practice in the art and such is disclosed in Solomons (page 953) and Watanabe (col. 14, Example 5).

Thus, it would have been obvious to a skilled artisan at the time the invention was made to employ the teaching of Solomons or Watanabe to provide the ionic liquid salt for McGuinness' catalyst preparation process since such is conventional done in the art and in the absence of any showing criticality and unexpected results.

Similar rejections as shown above are also made based on the teaching of Chauvin et al. (Ind. Eng. Chem. Res, 1995, 34, 1149-1155) and Chauvin et al. (Journal of Catalysis, 165, 273-287, 1997) respectively.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Caixia Lu whose telephone number is (571) 272-1106. The examiner can normally be reached from 9:00 am to 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful and the matter is urgent, the examiner's supervisor, David Wu, can be reached at (571) 272-1114. The fax numbers for the organization where this application or proceeding is assigned is (571) 273-8300.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (571) 272-1700.



Caixia Lu, Ph. D.  
Primary Examiner